described to date, including the one in this report, cimetidine or ranitidine was taken with niacin. A careful history should also be obtained of the consumption of wild mushrooms and exposure to hepatotoxins such as halocarbons.

In our opinion, the severity of chemical hepatitis associated sporadically with sustained-release niacin offsets the limited advantage of diminished flushing in the balance of risk and benefit. Physicians should avoid prescribing sustained-release preparations, counseling their patients instead in other strategies to induce tachyphylaxis to flushing as described earlier. Furthermore, niacin in doses above 100 mg should be regarded as a drug. Ideally, it should be on a prescription status and should be subject to the same scrutiny by regulatory agencies as other prescription drugs. Patients taking niacin should be under the surveillance of a physician who can monitor liver function and other indices of toxicity appropriately. It is also prudent to administer niacin no more than three times a day.

Many of our most effective drugs carry a potential for serious or even life-threatening side effects. Niacin, frequently viewed by the public as a benign food supplement, shares this property. The high therapeutic value of niacin in the treatment of hyperlipidemia and in the prevention of atherosclerosis merits its retention in the pharmacopeia. Our emerging awareness of fulminant hepatitis as a risk of treatment with sustained-release preparations should lead to their discontinuance. Furthermore, all patients receiving niacin should be observed with the same diligence as though they were being treated with a digitalis glycoside or an anticoagulant. Any major adverse effects should be reported to the US Food and Drug Administration.

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REFERENCES

1. Canner PL, Berge KG, Wenger NK, et al: Fifteen year mortality in coronary drug project patients: Long-term benefit with niacin. J Am Coll Cardiol 1986; 8: 1245-1255

2. Malloy MJ, Kane JP, Kunitake ST, Tun P: Complementarity of colestipol, niacin, and lovastatin in treatment of severe familial hypercholesterolemia. Ann Intern Med 1987; 107:616-623

3. Brown G, Albers JJ, Fishe LD: Regression of coronary artery disease as a result of intensive lipid lowering therapy in men with high levels of apolipoprotein B. N Engl J Med 1990; 323:1289-1298

4. Kane JP, Malloy MJ, Ports TA, Phillips NR, Diehl JC, Havel RJ: Regression of coronary atherosclerosis during treatment of familial hypercholesterolemia with combined drug regimens. JAMA 1990; 264:3007-3012

5. Baggenstoss AH, Christensen NA, Berge KG, Baldus WP, Spiekerman RE, Ellefson RD: Fine structural changes in the liver in hypercholesteremic patients receiving long-term nicotinic acid therapy. Mayo Clin Proc 1967; 42:385-399

6. Patterson DJ, Dew EW, Gyorkey F, Graham DY: Niacin hepatitis. South Med J 1983; 76:239-241

7. Mullin GE, Greenson JK, Mitchell MC: Fulminant hepatic failure after ingestion of sustained-release nicotinic acid. Ann Intern Med 1989; 111:253-255

8. Hodis HN: Acute hepatic failure associated with the use of low-dose sustained-release niacin (Letter). JAMA 1990; 264:181

9. Kohn RM, Montes M: Hepatic fibrosis following long acting nicotinic acid therapy: A case report. Am J Med Sci 1969; 258:94-99

10. Etchason JA, Miller TD, Squires RW, et al: Niacin-induced hepatitis: A potential side effect with low-dose time-release niacin. Mayo Clin Proc 1991; 66:23-28

11. Henkin Y, Johnson KC, Segrest JP: Rechallenge with crystalline niacin after drug-induced hepatitis from sustained-release niacin. JAMA 1990; 264:241-243

12. Frost PH: All niacin is not the same (Letter). Ann Intern Med 1991; 114:1065

13. Fischer DJ, Knight LL, Vestal RE: Fulminant hepatic failure following low-dose sustained-release niacin therapy in hospital. West J Med 1991 Oct; 155:410-412

14. Christensen NA, Achor RWP, Berge KG, Mason HL: Nicotinic acid treatment of hypercholesterolemia. JAMA 1961; 177:546-550

15. Winter SL, Boyer JL: Nicotinamide can cause hepatitis. N Engl J Med 1973; 289:1180-1182

Preceptorships in the 21st Century
The Return of the Apprentice

A PRECEPTORSHIP is an educational experience in which medical students or residents spend a period of time with a physician in a practice setting outside the medical school or teaching hospital. It is meant to be a one-on-one learning assignment that allows students and residents to experience the scope and flavor of the practice of medicine in a physician's office and in the community. It is difficult to know when preceptorships were first officially recognized in the United States medical school curriculum, but we do know that the University of Wisconsin Medical School began a medical student preceptorship in 1926 "as a bold new experience in medical education for senior students." The concept of novices learning at the side of masters is an old one, however, certainly as old as the practice of medicine itself.

In fact, in the pre-Flexner days and before the development of the modern teaching hospital, most medical training in the United States occurred at the side of private practitioners. Because we think that teaching by private practitioners will increase, we have called this predicted trend the "return of the apprentice." This trend is due, in part, to a recognition that ambulatory care should become a more important part of medical training. Many teaching hospitals are already increasing the time spent by medical students and residents in their outpatient clinics.

This shift from inpatient to outpatient teaching is spilling out of the teaching hospital and into private practice to provide students and residents exposure to a greater variety of diseases and disorders. According to a 1979 survey of family medicine departments, 94 of 101 responding medical schools reported offering some type of preceptorship. In 1986, Meadows and co-workers found that 88% of those responding from family medicine, 66% from pediatrics, and 26% from internal medicine departments offered medical school experience in private practices.[1]

The desirability of teaching clinical medicine in the private office was highlighted by a medical school teacher who commented, "Learning primary care in a university hospital is like trying to learn forestry in a lumberyard."[2] This dichotomy between what is taught and what is practiced was described in the well-publicized critique of medical education, the American Association of Medical Colleges' General Professional Education of the Physician Report, "Physicians for the Twenty-first Century," which noted, "Although fewer than five percent of all physician/patient contacts result in hospitalization, clinical clerkships are predominantly based on hospital inpatient services."[3] Thus, we view the "return of the apprentice" as a necessary and desirable trend in medical education with benefits to the physicians-in-training (medical students and residents) and their physician-teachers (preceptors).

The preceptorship provides the physicians-in-training the opportunity to develop insights into the physicians' way of life in a community setting, urban or rural. In a preceptorship, learners come to understand the individual nature of

medical practice and the need for knowing each patient in relation to his or her family and community setting. Students and residents are given the opportunity to attend meetings of local civic organizations and to participate in meetings of county medical societies and community hospital staffs.

As preceptors become a major access point for facilitating future physicians' understanding of and participation in direct patient care and community and professional involvement, they become role models in whom physicians-in-training see the blending of the practice of medicine with personal life-style. In return, there are rewards for both teachers and learners. As one Utah preceptor told us,

> When I think back to my own training experience, I realize that the teachers who impressed me most were those who imparted their style to me. Some of my greatest pleasures come when, at the end of the preceptorship, students say they have learned something special about caring for patients . . . that something of my style has been observed, appreciated, and accepted.[4]

Also, in the give and take with students or residents, perceptors may gain new insights and perspectives, and the preceptorships may provide opportunities for private physicians to keep in touch with medical schools and to widen their scope of knowledge. One Colorado preceptor acknowledged, "Having students and residents around requires that we keep abreast of the latest developments in medicine and be familiar enough with the current literature to cite references when discussing our decisions and strategies."[5]

Although the preceptorship may be a "return of the apprentice," it need not be viewed as a step back into the 19th century. The preceptorship for the 21st century can be well structured with defined goals and objectives. What is learned should not be left to random happenstance. Instead, learning experiences can be designed to take maximum advantage of community-based office practice settings and the types of patient care problems that are seen there.

With the increasing recognition of the value of the preceptorship, more preceptors will be needed. We encourage private physicians to be responsive to requests from medical schools and residency programs for new preceptorship sites. In addition, private practitioners can take an active, rather than reactive, stance by contacting the medical schools in their state or the medical school from which they graduated and volunteering to become preceptors. If medical education is to adequately train physicians for the 21st century, the educational role of private practitioners needs to be increased and expanded.

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REFERENCES

1. Meadows JC, Baver RL, Diehl AK: Private physicians in ambulatory care training in US medical schools. J Med Educ 1986; 61:437-443

2. Verby JE, Shaefer MT, Voeks RS: Learning forestry out of the lumberyard: A training alternative for primary care. JAMA 1981; 246:645-647

3. General Professional Education of the Physician Report: Physicians for the twenty-first century. J Med Educ 1984; 59:1-29

4. Bishop FM: Training our future physicians: The preceptorship in perspective. Utah State Med Assoc Bull 1987; 35:4

5. Sophocles A Jr: Family medicine: The Beckenridge experience. Utah State Med Assoc Bull 1987; 35:14